

INTERNAL COMBUSTION ENGINE TRANSIENT FUEL CONTROL

ABSTRACT

5 An apparatus and method for improving the transient response of a spark-
ignited fuel-injected internal combustion engine is disclosed. This is accomplished
by employing one or more novel capillary fuel injectors. These devices are port fuel
injectors modified by inserting one or more relatively small diameter heated tubular
capillaries between the fuel line and a conventional injector. Sufficient heating can
be produced so that flash vaporization occurs as the fuel exits the injector. The
10 heaters are turned on using control algorithms that can be based on exhaust gas
oxygen concentration, load on the engine, and accelerator pedal position.

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